

What is claimed is:

1. An optical system comprising first and second optical lenses arranged so as to have coinciding or substantially coinciding optical axes, wherein:

5           said first optical lens has a substrate comprised of an optical material;

          said substrate has a convex portion serving as a convex lens and an outer circumference portion positioned around said convex portion;

10           a thickness of said substrate at said outer circumference portion is greater than a thickness of said substrate at said convex portion; and

          the outer circumference portion of said first optical lens and said second optical lens are fixed in  
15       place so that said convex portion of said first optical lens faces said second optical lens.

2. An optical system as set forth in claim 1, wherein:

          the outer circumference portion of said first  
20       optical lens faces the outer circumference portion of said second optical lens; and

          a facing surface of said outer circumference portion of said first optical lens and a facing surface of said outer circumference portion of said second  
25       optical lens are flat or approximately flat.

3. An optical system as set forth in claim 2,  
wherein:

a facing surface of said outer circumference  
portion of said first optical lens is vertical or  
5 substantially vertical with respect to an optical axis of  
said first optical lens;

a facing surface of said outer circumference  
portion of said second optical lens is vertical or  
substantially vertical with respect to an optical axis of  
10 said second optical lens; and

a facing surface of said outer circumference  
portion of said first optical lens and a facing surface  
of said outer circumference portion of said second  
optical lens are bonded together.

15 4. An optical system as set forth in claim 1,  
wherein:

said outer circumference portion is positioned  
around said flat portion; and

a thickness of said substrate at said outer  
20 circumference portion is greater than a thickness of said  
substrate at said flat portion.

5. An optical system as set forth in claim 1,  
wherein the outer circumference portion of said first  
optical lens and said second optical lens are bonded via  
25 an intermediate member so that said convex portion of

said first optical lens faces said second optical lens.

6. An optical system as set forth in claim 1,  
wherein:

5 said second optical lens has a first convex  
portion on one surface, a second convex portion on the  
other surface facing said one surface, and an outer  
circumference portion positioned around said first and  
second convex portions, center axes of said coinciding or  
substantially coinciding; and

10 the outer circumference portion of said second  
optical lens and the outer circumference portion of said  
first optical lens are fixed in place.

7. A method of producing an optical system having  
first and second optical lenses, wherein:

15 said first optical lens has a substrate  
comprised of an optical material; and

said substrate has a convex portion serving as  
a convex lens and an outer circumference portion  
positioned around said convex portion, a thickness of  
20 said substrate at the outer circumference portion being  
greater than a thickness of said substrate at said convex  
portion;

comprising the step of bonding together said  
outer circumference portion of said first optical lens  
25 and said second optical lens so that optical axes of said

first and second optical lenses coincide or substantially coincide.

8. A method of producing an optical system as set forth in claim 7,

5 further including the step of mounting the outer circumference portion of said second optical lens on said outer circumference portion of said first optical lens and positioning said first and second optical lenses so that said optical axes coincide or substantially  
10 coincide;

a mounting surface of said outer circumference portion of said first optical lens being flat or approximately flat; and

a bottom surface of said outer circumference  
15 portion of said second optical lens being flat or approximately flat.

9. A method of producing an optical system as set forth in claim 8, wherein:

the mounting surface of said outer  
20 circumference portion of said first optical lens is vertical or substantially vertical with respect to the optical axis of said first optical lens; and

the bottom surface of said outer circumference  
portion of said second optical lens is vertical or  
25 substantially vertical with respect to the optical axis

of said second optical lens.

10. A method of producing an optical system as set forth in claim 7, wherein:

said first optical lens further comprises a  
5 flat portion positioned around said convex portion;

said outer circumference portion of said first optical lens is positioned around said flat portion; and

a thickness of said substrate at said outer circumference portion of said first optical lens is  
10 greater than a thickness of said substrate at said flat portion.

11. A method of producing an optical system as set forth in claim 7, wherein said outer circumference portion of said first optical lens and said second  
15 optical lens are bonded via an intermediate member so that the optical axes of said first and second optical lenses coincide or substantially coincide.

12. A method of producing an optical system as set forth in claim 7, wherein said second optical lens has a  
20 first convex portion on one surface, a second convex portion on the other surface facing said one surface, and said outer circumference portion positioned around said first and second convex portions, center axes of said first and second convex portions coinciding or  
25 substantially coinciding.

13. An optical pickup, comprising:

a laser;

an optical system for focusing laser light from  
said laser on an optical disk; and

5 a photodetector for receiving said laser light  
reflected at said optical disk;

wherein:

said optical system comprises first and second  
optical lenses arranged so that their optical axes  
10 coincide or substantially coincide;

said second optical lens passes the laser light  
from said laser and supplies it to said first optical  
lens;

said first optical lens has a substrate  
15 comprised of an optical material;

said substrate has a convex portion for  
focusing laser light from second optical lens on said  
optical disk and an outer circumference portion  
positioned around said convex portion;

20 a thickness of said substrate at said outer  
circumference portion is greater than a thickness of said  
substrate at said convex portion; and

the outer circumference portion of said first  
optical lens and said second optical lens are fixed in  
25 place so that said convex portion of said first optical

lens faces said second optical lens.

14. An optical pickup as set forth in claim 13,  
wherein:

5 said outer circumference portion of said first  
optical lens faces the outer circumference portion of  
said second optical lens; and

10 a facing surface of said outer circumference  
portion of said first optical lens and a facing surface  
of said outer circumference portion of said second  
optical lens are flat or approximately flat.

15. An optical pickup as set forth in claim 14,  
wherein:

15 a facing surface of said outer circumference  
portion of said first optical lens is vertical or  
substantially vertical with respect to the optical axis  
of said first optical lens;

20 a facing surface of said outer circumference  
portion of said second optical lens is vertical or  
substantially vertical with respect to the optical axis  
of said second optical lens; and

the facing surface of said outer circumference  
portion of said first optical lens and the facing surface  
of said outer circumference portion of said first optical  
lens are bonded together.

25 16. An optical pickup as set forth in claim 13,

wherein:

said first optical lens further comprises a flat portion positioned around said convex portion;

said outer circumference portion is positioned  
5 around said flat portion; and

a thickness of said substrate at said outer circumference portion is greater than a thickness of said substrate at said flat portion.

17. An optical pickup as set forth in claim 13,  
10 wherein the outer circumference portion of said first optical lens and said second optical lens are bonded via an intermediate member so that said convex portion of said first optical lens faces said second optical lens.

18. An optical pickup as set forth in claim 13,  
15 wherein:

said second optical lens has a first convex portion on one surface, a second convex portion on the other surface facing said one surface and an outer circumference portion positioned around said first and  
20 second convex portions, center axes of said first and second convex portions coinciding or substantially coinciding, and

the outer circumference portion of said second optical lens and an outer circumference portion of said  
25 first optical lens are bonded together.